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      University of Maryland

<120> CYSTINE KNOT GROWTH FACTOR MUTANTS

<130> UOFMD.003C1

<150> PCT/US99/05908
<151> 1999-03-19

<150> PCT/US98/19772
<151> 1998-09-22

<160> 41

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 93
<212> PRT
<213> HOMO SAPIEN

<400> 1
Pro Ala Pro Asp Val Gln Asp Cys Pro Glu Cys Thr Leu Gln Glu Asn
1   5   10   15
Pro Phe Phe Ser Gln Pro Gly Ala Pro Ile Leu Gln Cys Met Gly Cys
            20   25   30
Cys Phe Ser Arg Ala Tyr Pro Thr Pro Leu Arg Ser Lys Lys Thr Met
            35   40   45
Leu Val Gln Lys Asn Val Thr Ser Glu Ser Thr Cys Cys Val Ala Lys
        50   55   60
Ser Tyr Asn Arg Val Thr Val Met Gly Gly Phe Lys Val Glu Asn His
65   70   75   80
Thr Ala Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser
                85   90

<210> 2
<211> 119
<212> PRT
<213> HOMO SAPIEN

<400> 2
Pro Phe Cys Ile Pro Thr Glu Tyr Thr Met His Ile Glu Arg Arg Glu
1   5   10   15
Cys Ala Tyr Cys Leu Thr Ile Asn Thr Thr Ile Cys Ala Gly Tyr Cys
            20   25   30
Met Thr Arg Asp Ile Asn Gly Lys Leu Phe Leu Pro Lys Tyr Ala Leu
            35   40   45
Ser Gln Asp Val Cys Thr Tyr Arg Asp Phe Ile Tyr Arg Thr Val Glu
        50   55   60
Ile Pro Gly Cys Pro Leu His Val Ala Pro Tyr Phe Ser Tyr Pro Val

```
              65                      70                      75                      80
Ala Leu Ser Cys Lys Cys Gly Lys Cys Asn Thr Asp Tyr Ser Asp Cys
                         85                      90                      95
Ile His Glu Ala Ile Lys Thr Asn Tyr Cys Thr Lys Pro Gln Lys Ser
                    100                     105                     110
Tyr Leu Val Gly Phe Ser Val
         115


<210> 3
<211> 141
<212> PRT
<213> HOMO SAPIEN

<400> 3
Pro Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr
  1               5                      10                      15
Leu Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr
                20                      25                      30
Thr Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly
             35                      40                      45
Val Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg
          50                      55                      60
Phe Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Asn Pro Val
 65                      70                      75                      80
Val Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg
                85                      90                      95
Ser Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp
                   100                     105                     110
Asp Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser
                   115                     120                     125
Leu Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr
         130                     135                     140


<210> 4
<211> 122
<212> PRT
<213> HOMO SAPIEN

<400> 4
Pro Ser Arg Glu Pro Leu Arg Pro Trp Cys His Pro Ile Asn Ala Ile
  1               5                      10                      15
Leu Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr
                20                      25                      30
Thr Ile Cys Ala Gly Tyr Cys Pro Thr Met Met Arg Val Leu Gln Ala
             35                      40                      45
Val Leu Pro Pro Leu Pro Gln Val Val Cys Thr Tyr Arg Asp Val Arg
          50                      55                      60
Phe Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Asp Pro Val
 65                      70                      75                      80
Val Ser Phe Pro Val Ala Leu Ser Cys Arg Cys Gly Pro Cys Arg Arg
                85                      90                      95
Ser Thr Ser Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp
                   100                     105                     110
His Pro Gln Leu Ser Gly Leu Leu Phe Leu
         115                     120
```

<210> 5
<211> 110
<212> PRT
<213> HOMO SAPIEN

<400> 5
Pro Asn Ser Cys Glu Leu Thr Asn Ile Thr Ile Ala Ile Glu Lys Glu
 1   5   10   15
Glu Cys Arg Phe Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly Tyr
            20   25   30
Cys Tyr Thr Arg Asp Leu Val Tyr Lys Asp Pro Ala Arg Pro Lys Ile
        35   40   45
Thr Cys Thr Phe Lys Glu Leu Val Tyr Glu Thr Val Arg Val Pro Gly
    50   55   60
Cys Ala His His Ala Asp Ser Leu Tyr Thr Tyr Pro Val Ala Thr Gln
65   70   75   80
Cys His Cys Gly Lys Cys Asp Ser Asp Ser Thr Asp Cys Thr Val Arg
            85   90   95
Gly Leu Gly Pro Ser Tyr Cys Ser Phe Gly Glu Met Lys Glu
            100   105   110

<210> 6
<211> 126
<212> PRT
<213> HOMO SAPIEN

<400> 6
Pro Ser Ile Glu Glu Ala Val Pro Ala Val Cys Lys Thr Arg Thr Val
 1   5   10   15
Ile Tyr Glu Ile Pro Arg Ser Gln Val Asp Pro Thr Ser Ala Asn Phe
            20   25   30
Leu Ile Trp Pro Pro Cys Val Glu Val Lys Arg Cys Thr Gly Cys Cys
        35   40   45
Asn Thr Ser Ser Val Lys Cys Gln Pro Ser Arg Val His His Arg Ser
    50   55   60
Val Lys Val Ala Lys Val Glu Tyr Val Arg Lys Lys Pro Lys Leu Lys
65   70   75   80
Glu Val Gln Val Arg Leu Glu Glu His Leu Glu Cys Ala Cys Ala Thr
            85   90   95
Thr Ser Leu Asn Pro Asp Tyr Arg Glu Glu Asp Thr Gly Arg Pro Arg
            100   105   110
Glu Ser Gly Lys Lys Arg Lys Arg Lys Arg Leu Lys Pro Thr
            115   120   125

<210> 7
<211> 161
<212> PRT
<213> HOMO SAPIEN

<400> 7
Pro Ser Leu Gly Ser Leu Thr Ile Ala Glu Pro Ala Met Ile Ala Glu
 1   5   10   15
Cys Lys Thr Arg Thr Glu Val Phe Glu Ile Ser Arg Arg Leu Ile Asp

```
                 20                    25                    30
Arg Thr Asn Ala Asn Phe Leu Val Trp Pro Pro Cys Val Glu Val Gln
         35                    40                    45
Arg Cys Ser Gly Cys Cys Asn Asn Arg Asn Val Gln Cys Arg Pro Thr
     50                    55                    60
Gln Val Gln Leu Arg Pro Val Gln Val Arg Lys Ile Glu Ile Val Arg
65                    70                    75                    80
Lys Lys Pro Ile Phe Lys Lys Ala Thr Val Thr Leu Glu Asp His Leu
                 85                    90                    95
Ala Cys Lys Cys Glu Thr Val Ala Ala Ala Arg Pro Val Thr Arg Ser
             100                   105                   110
Pro Gly Gly Ser Gln Glu Gln Arg Ala Lys Thr Pro Gln Thr Arg Val
         115                   120                   125
Thr Ile Arg Thr Val Arg Val Arg Arg Pro Pro Lys Gly Lys His Arg
     130                   135                   140
Lys Phe Lys His Thr His Asp Lys Thr Ala Leu Lys Glu Thr Leu Gly
145                   150                   155                   160
Ala
```

```
<210> 8
<211> 190
<212> PRT
<213> HOMO SAPIEN

<400> 8
Pro Ala Pro Met Ala Glu Gly Gly Gly Gln Asn His His Glu Val Val
 1               5                    10                    15
Lys Phe Met Asp Val Tyr Gln Arg Ser Tyr Cys His Pro Ile Glu Thr
             20                    25                    30
Leu Val Asp Ile Phe Gln Glu Tyr Pro Asp Glu Ile Glu Tyr Ile Phe
         35                    40                    45
Lys Pro Ser Cys Val Pro Leu Met Arg Cys Gly Gly Cys Cys Asn Asp
     50                    55                    60
Glu Gly Leu Glu Cys Val Pro Thr Glu Glu Ser Asn Ile Thr Met Gln
65                    70                    75                    80
Ile Met Arg Ile Lys Pro His Gln Gly Gln His Ile Gly Glu Met Ser
             85                    90                    95
Phe Leu Gln His Asn Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg Ala
             100                   105                   110
Arg Gln Glu Lys Lys Ser Val Arg Gly Lys Gly Lys Gly Gln Lys Arg
         115                   120                   125
Lys Arg Lys Lys Ser Arg Tyr Lys Ser Trp Ser Val Pro Cys Gly Pro
     130                   135                   140
Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln Asp Pro Gln Thr Cys
145                   150                   155                   160
Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys Lys Ala Arg Gln Leu
             165                   170                   175
Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys Pro Arg Arg
         180                   185                   190
```

```
<210> 9
<211> 121
<212> PRT
<213> HOMO SAPIEN
```

<400> 9
Pro Ser Ser Ser His Pro Ile Phe His Arg Gly Glu Phe Ser Val Cys
1   5   10   15
Asp Ser Val Ser Val Trp Val Gly Asp Lys Thr Thr Ala Thr Asp Ile
            20   25   30
Lys Gly Lys Glu Val Met Val Leu Gly Glu Val Asn Asn Ile Asn Ser
        35   40   45
Val Phe Lys Gln Tyr Phe Phe Glu Thr Lys Cys Arg Asp Pro Asn Pro
    50   55   60
Val Asp Ser Gly Cys Arg Gly Ile Asp Ser Lys His Trp Asn Ser Tyr
65   70   75   80
Cys Thr Thr Thr His Thr Phe Val Lys Ala Met Leu Thr Asp Gly Lys
            85   90   95
Gln Ala Ala Trp Arg Phe Ile Arg Ile Asp Thr Ala Cys Val Cys Val
            100   105   110
Leu Ser Arg Lys Ala Val Arg Arg Ala
        115   120

<210> 10
<211> 120
<212> PRT
<213> HOMO SAPIEN

<400> 10
Pro His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser
1   5   10   15
Ile Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met
            20   25   30
Ser Gly Gly Thr Val Thr Val Leu Glu Lys Val Ser Pro Val Lys Gly
        35   40   45
Gln Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr
    50   55   60
Thr Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln
65   70   75   80
Cys Arg Thr Thr Gln Ser Tyr Val Arg Ala Met Leu Thr Asp Ser Lys
            85   90   95
Lys Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys
            100   105   110
Ile Leu Thr Ile Lys Arg Gly Arg
        115   120

<210> 11
<211> 120
<212> PRT
<213> HOMO SAPIEN

<400> 11
Pro Tyr Ala Glu His Lys Ser His Arg Gly Glu Tyr Ser Val Cys Asp
1   5   10   15
Ser Glu Ser Leu Trp Val Thr Asp Lys Ser Ser Ala Ile Asp Ile Arg
            20   25   30
Gly His Gln Val Thr Val Leu Gly Glu Ile Gly Lys Thr Asn Ser Pro
        35   40   45
Val Lys Gln Tyr Phe Tyr Glu Thr Arg Cys Lys Glu Ala Arg Pro Val

```
                50                      55                      60
     Lys Asn Gly Cys Arg Gly Ile Asp Asp Arg His Trp Asn Ser Gln Cys
     65                      70                      75                      80
     Lys Thr Ser Gln Thr Tyr Val Arg Ala Ser Leu Thr Glu Asn Asn Lys
                             85                      90                      95
     Leu Val Gly Trp Arg Trp Ile Arg Ile Asp Thr Ser Cys Val Cys Ala
                        100                     105                     110
     Leu Ser Arg Lys Ile Gly Arg Thr
                115                     120


     <210> 12
     <211> 131
     <212> PRT
     <213> HOMO SAPIEN


     <400> 12
     Pro Gly Val Ser Glu Thr Ala Pro Ala Ser Arg Arg Gly Glu Leu Ala
      1               5                      10                      15
     Val Cys Asp Ala Val Ser Gly Trp Val Thr Asp Arg Arg Thr Ala Val
                        20                      25                      30
     Asp Leu Arg Gly Arg Glu Val Glu Val Leu Gly Glu Val Pro Ala Ala
                        35                      40                      45
     Gly Gly Ser Pro Leu Arg Gln Tyr Phe Phe Glu Thr Arg Cys Lys Ala
                50                      55                      60
     Asp Asn Ala Glu Glu Gly Gly Pro Gly Ala Gly Gly Gly Gly Cys Arg
     65                      70                      75                      80
     Gly Val Asp Arg Arg His Trp Val Ser Glu Cys Lys Ala Lys Gln Ser
                             85                      90                      95
     Tyr Val Arg Ala Leu Thr Ala Asp Ala Gln Gly Arg Val Gly Trp Arg
                        100                     105                     110
     Trp Ile Arg Ile Asp Thr Ala Cys Val Cys Thr Leu Leu Ser Arg Thr
                        115                     120                     125
     Gly Arg Ala
                130


     <210> 13
     <211> 113
     <212> PRT
     <213> HOMO SAPIEN


     <400> 13
     Pro Ala Leu Asp Thr Asn Tyr Cys Phe Ser Ser Thr Glu Lys Asn Cys
      1               5                      10                      15
     Cys Val Arg Gln Leu Tyr Ile Asp Phe Arg Lys Asp Leu Gly Trp Lys
                        20                      25                      30
     Trp Ile His Glu Pro Lys Gly Tyr His Ala Asn Phe Cys Leu Gly Pro
                35                      40                      45
     Cys Pro Tyr Ile Trp Ser Leu Asp Thr Gln Tyr Ser Lys Val Leu Ala
                50                      55                      60
     Leu Tyr Asn Gln His Asn Pro Gly Ala Ser Ala Ala Pro Cys Cys Val
     65                      70                      75                      80
     Pro Gln Ala Leu Glu Pro Leu Pro Ile Val Tyr Tyr Val Gly Arg Lys
                             85                      90                      95
     Pro Lys Val Glu Gln Leu Ser Asn Met Ile Val Arg Ser Cys Lys Cys
                        100                     105                     110
```

Ser

<210> 14
<211> 113
<212> PRT
<213> HOMO SAPIEN

<400> 14
Pro Ala Leu Asp Ala Ala Tyr Cys Phe Arg Asn Val Gln Asp Asn Cys
 1   5   10   15
Cys Leu Arg Pro Leu Tyr Ile Asp Phe Lys Arg Asp Leu Gly Trp Lys
            20   25   30
Trp Ile His Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly Ala
            35   40   45
Cys Pro Tyr Leu Trp Ser Ser Asp Thr Gln His Ser Arg Val Leu Ser
            50   55   60
Leu Tyr Asn Thr Ile Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val
65   70   75   80
Ser Gln Asp Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Ile Gly Lys Thr
                85   90   95
Pro Lys Ile Glu Gln Leu Ser Asn Met Ile Val Lys Ser Cys Lys Cys
               100   105   110
Ser

<210> 15
<211> 113
<212> PRT
<213> HOMO SAPIEN

<400> 15
Pro Ala Leu Asp Thr Asn Tyr Cys Phe Arg Asn Leu Glu Glu Asn Cys
 1   5   10   15
Cys Val Arg Pro Leu Tyr Ile Asp Phe Arg Gln Asp Leu Gly Trp Lys
            20   25   30
Trp Val His Glu Pro Lys Gly Tyr Tyr Ala Asn Phe Cys Ser Gly Pro
            35   40   45
Cys Pro Tyr Leu Arg Ser Ala Asp Thr Thr His Ser Thr Val Leu Gly
            50   55   60
Leu Tyr Asn Thr Leu Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val
65   70   75   80
Pro Gln Asp Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Val Gly Arg Thr
                85   90   95
Pro Lys Val Glu Gln Leu Ser Asn Met Val Val Lys Ser Cys Lys Cys
               100   105   110
Ser

<210> 16
<211> 371
<212> PRT
<213> HOMO SAPIEN

<400> 16

```
Pro Met Trp Pro Leu Trp Leu Cys Trp Ala Leu Trp Val Leu Pro Leu
1               5                   10                  15
Ala Gly Pro Gly Ala Ala Leu Thr Glu Glu Gln Leu Leu Ala Ser Leu
            20                  25                  30
Leu Arg Gln Leu Gln Leu Ser Glu Val Pro Val Leu Asp Arg Ala Asp
        35                  40                  45
Met Glu Lys Leu Val Ile Pro Ala His Val Arg Ala Gln Tyr Val Val
    50                  55                  60
Leu Leu Arg Arg Asp Gly Asp Arg Ser Arg Gly Lys Arg Phe Ser Gln
65                  70                  75                  80
Ser Phe Arg Glu Val Ala Gly Arg Phe Leu Ala Ser Glu Ala Ser Thr
            85                  90                  95
His Leu Leu Val Phe Gly Met Glu Gln Arg Leu Pro Pro Asn Ser Glu
            100                 105                 110
Leu Val Gln Ala Val Leu Arg Leu Phe Gln Glu Pro Val Pro Gln Gly
        115                 120                 125
Ala Leu His Arg His Gly Arg Leu Ser Pro Ala Ala Pro Lys Ala Arg
        130                 135                 140
Val Thr Val Glu Trp Leu Val Arg Asp Asp Gly Ser Asn Arg Thr Ser
145                 150                 155                 160
Leu Ile Asp Ser Arg Leu Val Ser Val His Glu Ser Gly Trp Lys Ala
            165                 170                 175
Phe Asp Val Thr Glu Ala Val Asn Phe Trp Gln Gln Leu Ser Arg Pro
            180                 185                 190
Pro Glu Pro Leu Leu Val Gln Val Ser Val Gln Arg Glu His Leu Gly
        195                 200                 205
Pro Leu Ala Ser Gly Ala His Lys Leu Val Arg Phe Ala Ser Gln Gly
        210                 215                 220
Ala Pro Ala Gly Leu Gly Glu Pro Gln Leu Glu Leu His Thr Leu Asp
225                 230                 235                 240
Leu Arg Asp Tyr Gly Ala Gln Gly Asp Cys Asp Pro Glu Ala Pro Met
            245                 250                 255
Thr Glu Gly Thr Arg Cys Cys Arg Gln Glu Met Tyr Ile Asp Leu Gln
            260                 265                 270
Gly Met Lys Trp Ala Lys Asn Trp Val Leu Glu Pro Pro Gly Phe Leu
        275                 280                 285
Ala Tyr Glu Cys Val Gly Thr Cys Gln Gln Pro Pro Glu Ala Leu Ala
        290                 295                 300
Phe Asn Trp Pro Phe Leu Gly Pro Arg Gln Cys Ile Ala Ser Glu Thr
305                 310                 315                 320
Ala Ser Leu Pro Met Ile Val Ser Ile Lys Glu Gly Gly Arg Thr Arg
            325                 330                 335
Pro Gln Val Val Ser Leu Pro Asn Met Arg Val Gln Lys Cys Ser Cys
            340                 345                 350
Ala Ser Asp Gly Ala Leu Val Pro Arg Arg Leu Gln His Arg Pro Trp
            355                 360                 365
Cys Ile His
    370
```

<210> 17
<211> 198
<212> PRT
<213> HOMO SAPIEN

<400> 17

```
Pro Met Gln Arg Trp Lys Ala Ala Ala Leu Ala Ser Val Leu Cys Ser
1               5                   10                  15
Ser Val Leu Ser Ile Trp Met Cys Arg Glu Gly Leu Leu Leu Ser His
            20                  25                  30
Arg Leu Gly Pro Ala Leu Val Pro Leu His Arg Leu Pro Arg Thr Leu
        35                  40                  45
Asp Ala Arg Ile Ala Arg Leu Ala Gln Tyr Arg Ala Leu Leu Gln Gly
    50                  55                  60
Ala Pro Asp Ala Met Glu Leu Arg Glu Leu Thr Pro Trp Ala Gly Arg
65                  70                  75                  80
Pro Pro Gly Pro Arg Arg Arg Ala Gly Pro Arg Arg Arg Arg Ala Arg
                85                  90                  95
Ala Arg Leu Gly Ala Arg Pro Cys Gly Leu Arg Glu Leu Glu Val Arg
        100                 105                 110
Val Ser Glu Leu Gly Leu Gly Tyr Ala Ser Asp Glu Thr Val Leu Phe
        115                 120                 125
Arg Tyr Cys Ala Gly Ala Cys Glu Ala Ala Ala Arg Val Tyr Asp Leu
    130                 135                 140
Gly Leu Arg Arg Leu Arg Gln Arg Arg Arg Leu Arg Arg Glu Arg Val
145                 150                 155                 160
Arg Ala Gln Pro Cys Cys Arg Pro Thr Ala Tyr Glu Asp Glu Val Ser
                165                 170                 175
Phe Leu Asp Ala His Ser Arg Tyr His Thr Val His Glu Leu Ser Ala
            180                 185                 190
Arg Glu Cys Ala Cys Val
            195


<210> 18
<211> 367
<212> PRT
<213> HOMO SAPIEN

<400> 18
Pro Met Val Leu His Leu Leu Leu Phe Leu Leu Leu Thr Pro Gln Gly
1               5                   10                  15
Gly His Ser Cys Gln Gly Leu Glu Leu Ala Arg Glu Leu Val Leu Ala
            20                  25                  30
Lys Val Arg Ala Leu Phe Leu Asp Ala Leu Gly Pro Pro Ala Val Thr
        35                  40                  45
Arg Glu Gly Gly Asp Pro Gly Val Arg Arg Leu Pro Arg Arg His Ala
    50                  55                  60
Leu Gly Gly Phe Thr His Arg Gly Ser Glu Pro Glu Glu Glu Glu Asp
65                  70                  75                  80
Val Ser Gln Ala Ile Leu Phe Pro Ala Thr Asp Ala Ser Cys Glu Asp
            85                  90                  95
Lys Ser Ala Ala Arg Gly Leu Ala Gln Glu Ala Glu Glu Gly Leu Phe
            100                 105                 110
Arg Tyr Met Phe Arg Pro Ser Gln His Thr Arg Ser Arg Gln Val Thr
    115                 120                 125
Ser Ala Gln Leu Trp Phe His Thr Gly Leu Asp Arg Gln Gly Thr Ala
    130                 135                 140
Ala Ser Asn Ser Ser Glu Pro Leu Leu Gly Leu Leu Ala Leu Ser Pro
145                 150                 155                 160
Gly Gly Pro Val Ala Val Pro Met Ser Leu Gly His Ala Pro Pro His
                165                 170                 175
Trp Ala Val Leu His Leu Ala Thr Ser Ala Leu Ser Leu Leu Thr His
```

```
                   180                    185                     190
    Pro Val Leu Val Leu Leu Leu Arg Cys Pro Leu Cys Thr Cys Ser Ala
            195                     200                     205
    Arg Pro Glu Ala Thr Pro Phe Leu Val Ala His Thr Arg Thr Arg Pro
            210                     215                     220
    Pro Ser Gly Gly Glu Arg Ala Arg Arg Ser Thr Pro Leu Met Ser Trp
    225                     230                     235                     240
    Pro Trp Ser Pro Ser Ala Leu Arg Leu Leu Gln Arg Pro Pro Glu Glu
                    245                     250                     255
    Pro Ala Ala His Ala Asn Cys His Arg Val Ala Leu Asn Ile Ser Phe
                    260                     265                     270
    Gln Glu Leu Gly Trp Glu Arg Trp Ile Val Tyr Pro Pro Ser Phe Ile
            275                     280                     285
    Phe His Tyr Cys His Gly Gly Cys Gly Leu His Ile Pro Pro Asn Leu
            290                     295                     300
    Ser Leu Pro Val Pro Gly Ala Pro Pro Thr Pro Ala Gln Pro Tyr Ser
    305                     310                     315                     320
    Leu Leu Pro Gly Ala Gln Pro Cys Cys Ala Ala Leu Pro Gly Thr Met
                    325                     330                     335
    Arg Pro Leu His Val Arg Thr Thr Ser Asp Gly Gly Tyr Ser Phe Lys
            340                     345                     350
    Tyr Glu Thr Val Pro Asn Leu Leu Thr Gln His Cys Ala Cys Ile
            355                     360                     365


    <210> 19
    <211> 427
    <212> PRT
    <213> HOMO SAPIEN

    <400> 19
    Pro Met Pro Leu Leu Trp Leu Arg Gly Phe Leu Leu Ala Ser Cys Trp
    1               5                       10                      15
    Ile Ile Val Arg Ser Ser Pro Thr Pro Gly Ser Glu Gly His Ser Ala
                    20                      25                      30
    Ala Pro Asp Cys Pro Ser Cys Ala Leu Ala Ala Leu Pro Lys Asp Val
            35                      40                      45
    Pro Asn Ser Gln Pro Glu Met Val Glu Ala Val Lys Lys His Ile Leu
            50                      55                      60
    Asn Met Leu His Leu Lys Lys Arg Pro Asp Val Thr Gln Pro Val Pro
    65                      70                      75                      80
    Lys Ala Ala Leu Leu Asn Ala Ile Arg Lys Leu His Val Gly Lys Val
                    85                      90                      95
    Gly Glu Asn Gly Tyr Val Glu Ile Glu Asp Asp Ile Gly Arg Arg Ala
                    100                     105                     110
    Glu Met Asn Glu Leu Met Glu Gln Thr Ser Glu Ile Ile Thr Phe Ala
            115                     120                     125
    Glu Ser Gly Thr Ala Arg Lys Thr Leu His Phe Glu Ile Ser Lys Glu
            130                     135                     140
    Gly Ser Asp Leu Ser Val Val Glu Arg Ala Glu Val Trp Leu Phe Leu
    145                     150                     155                     160
    Lys Val Pro Lys Ala Asn Arg Thr Arg Thr Lys Val Thr Ile Arg Leu
                    165                     170                     175
    Phe Gln Gln Gln Lys His Pro Gln Gly Ser Leu Asp Thr Gly Glu Glu
                    180                     185                     190
    Ala Glu Glu Val Gly Leu Lys Gly Glu Arg Ser Glu Leu Leu Leu Ser
            195                     200                     205
```

```
Glu Lys Val Val Asp Ala Arg Lys Ser Thr Trp His Val Phe Pro Val
    210                 215                 220
Ser Ser Ser Ile Gln Arg Leu Leu Asp Gln Gly Lys Ser Ser Leu Asp
225                 230                 235                 240
Val Arg Ile Ala Cys Glu Gln Cys Gln Glu Ser Gly Ala Ser Leu Val
                245                 250                 255
Leu Leu Gly Lys Lys Lys Lys Glu Glu Glu Gly Glu Gly Lys Lys
                260                 265                 270
Lys Gly Gly Gly Glu Gly Gly Ala Gly Ala Asp Glu Glu Lys Glu Gln
                275                 280                 285
Ser His Arg Pro Phe Leu Met Leu Gln Ala Arg Gln Ser Glu Asp His
    290                 295                 300
Pro His Arg Arg Arg Arg Arg Gly Leu Glu Cys Asp Gly Lys Val Asn
305                 310                 315                 320
Ile Cys Cys Lys Lys Gln Phe Phe Val Ser Phe Lys Asp Ile Gly Trp
                325                 330                 335
Asn Asp Trp Ile Ile Ala Pro Ser Gly Tyr His Ala Asn Tyr Cys Glu
                340                 345                 350
Gly Glu Cys Pro Ser His Ile Ala Gly Thr Ser Gly Ser Ser Leu Ser
    355                 360                 365
Phe His Ser Thr Val Ile Asn His Tyr Arg Met Arg Gly His Ser Pro
    370                 375                 380
Phe Ala Asn Leu Lys Ser Cys Cys Val Pro Thr Lys Leu Arg Pro Met
385                 390                 395                 400
Ser Met Leu Tyr Tyr Asp Asp Gly Gln Asn Ile Ile Lys Lys Asp Ile
                405                 410                 415
Gln Asn Met Ile Val Glu Glu Cys Gly Cys Ser
                420                 425
```

<210> 20
<211> 408
<212> PRT
<213> HOMO SAPIEN

<400> 20
```
Pro Met Asp Gly Leu Pro Gly Arg Ala Leu Gly Ala Ala Cys Leu Leu
  1               5                 10                  15
Leu Leu Ala Ala Gly Trp Leu Gly Pro Glu Ala Trp Gly Ser Pro Thr
                20                  25                  30
Pro Pro Pro Thr Pro Ala Ala Pro Pro Pro Pro Pro Pro Gly Ser
            35                  40                  45
Pro Gly Gly Ser Gln Asp Thr Cys Thr Ser Cys Gly Gly Phe Arg Arg
    50                  55                  60
Pro Glu Glu Leu Gly Arg Val Asp Gly Asp Phe Leu Glu Ala Val Lys
65                  70                  75                  80
Arg His Ile Leu Ser Arg Leu Gln Met Arg Gly Arg Pro Asn Ile Thr
                85                  90                  95
His Ala Val Pro Lys Ala Ala Met Val Thr Ala Leu Arg Lys Leu His
                100                 105                 110
Ala Gly Lys Val Arg Glu Asp Gly Arg Val Glu Ile Pro His Leu Asp
            115                 120                 125
Gly His Ala Ser Pro Gly Ala Asp Gly Gln Glu Arg Val Ser Glu Ile
    130                 135                 140
Ile Ser Phe Ala Glu Thr Asp Gly Leu Ala Ser Ser Arg Val Arg Leu
145                 150                 155                 160
Tyr Phe Phe Ile Ser Asn Glu Gly Asn Gln Asn Leu Phe Val Val Gln
```

165   170   175
Ala Ser Leu Trp Leu Tyr Leu Lys Leu Leu Pro Tyr Val Leu Glu Lys
                  180   185   190
Gly Ser Arg Arg Lys Val Arg Val Lys Val Tyr Phe Gln Glu Gln Gly
              195   200   205
His Gly Asp Arg Trp Asn Met Val Glu Lys Arg Val Asp Leu Lys Arg
          210   215   220
Ser Gly Trp His Thr Phe Pro Leu Thr Glu Ala Ile Gln Ala Leu Phe
225   230   235   240
Glu Arg Gly Glu Arg Arg Leu Asn Leu Asp Val Gln Cys Asp Ser Cys
                  245   250   255
Gln Glu Leu Ala Val Val Pro Val Phe Val Asp Pro Gly Glu Glu Ser
              260   265   270
His Arg Pro Phe Val Val Val Gln Ala Arg Leu Gly Asp Ser Arg His
          275   280   285
Arg Ile Arg Lys Arg Gly Leu Glu Cys Asp Gly Arg Thr Asn Leu Cys
      290   295   300
Cys Arg Gln Gln Phe Phe Ile Asp Phe Arg Leu Ile Gly Trp Asn Asp
305   310   315   320
Trp Ile Ile Ala Pro Thr Gly Tyr Tyr Gly Asn Tyr Cys Glu Gly Ser
                  325   330   335
Cys Pro Ala Tyr Leu Ala Gly Val Pro Gly Ser Ala Ser Ser Phe His
              340   345   350
Thr Ala Val Val Asn Gln Tyr Arg Met Arg Gly Leu Asn Pro Gly Thr
              355   360   365
Val Asn Ser Cys Cys Ile Pro Thr Lys Leu Ser Thr Met Ser Met Leu
          370   375   380
Tyr Phe Asp Asp Glu Tyr Asn Ile Val Lys Arg Asp Val Pro Asn Met
385   390   395   400
Ile Val Glu Glu Cys Gly Cys Ala
                  405

<210> 21
<211> 427
<212> PRT
<213> HOMO SAPIEN

<400> 21
Pro Met Pro Leu Leu Trp Leu Arg Gly Phe Leu Leu Ala Ser Cys Trp
 1   5   10   15
Ile Ile Val Arg Ser Ser Pro Thr Pro Gly Ser Glu Gly His Ser Ala
              20   25   30
Ala Pro Asp Cys Pro Ser Cys Ala Leu Ala Ala Leu Pro Lys Asp Val
          35   40   45
Pro Asn Ser Gln Pro Glu Met Val Glu Ala Val Lys Lys His Ile Leu
      50   55   60
Asn Met Leu His Leu Lys Lys Arg Pro Asp Val Thr Gln Pro Val Pro
65   70   75   80
Lys Ala Ala Leu Leu Asn Ala Ile Arg Lys Leu His Val Gly Lys Val
              85   90   95
Gly Glu Asn Gly Tyr Val Glu Ile Glu Asp Asp Ile Gly Arg Arg Ala
              100   105   110
Glu Met Asn Glu Leu Met Glu Gln Thr Ser Glu Ile Ile Thr Phe Ala
          115   120   125
Glu Ser Gly Thr Ala Arg Lys Thr Leu His Phe Glu Ile Ser Lys Glu
          130   135   140

```
Gly Ser Asp Leu Ser Val Val Glu Arg Ala Glu Val Trp Leu Phe Leu
145                 150                 155                 160
Lys Val Pro Lys Ala Asn Arg Thr Arg Thr Lys Val Thr Ile Arg Leu
                165                 170                 175
Phe Gln Gln Gln Lys His Pro Gln Gly Ser Leu Asp Thr Gly Glu Glu
            180                 185                 190
Ala Glu Glu Val Gly Leu Lys Gly Glu Arg Ser Glu Leu Leu Leu Ser
            195                 200                 205
Glu Lys Val Val Asp Ala Arg Lys Ser Thr Trp His Val Phe Pro Val
    210                 215                 220
Ser Ser Ser Ile Gln Arg Leu Leu Asp Gln Gly Lys Ser Ser Leu Asp
225                 230                 235                 240
Val Arg Ile Ala Cys Glu Gln Cys Gln Glu Ser Gly Ala Ser Leu Val
                245                 250                 255
Leu Leu Gly Lys Lys Lys Lys Lys Glu Glu Glu Gly Glu Gly Lys Lys
            260                 265                 270
Lys Gly Gly Gly Glu Gly Gly Ala Gly Ala Asp Glu Glu Lys Glu Gln
            275                 280                 285
Ser His Arg Pro Phe Leu Met Leu Gln Ala Arg Gln Ser Glu Asp His
            290                 295                 300
Pro His Arg Arg Arg Arg Arg Gly Leu Glu Cys Asp Gly Lys Val Asn
305                 310                 315                 320
Ile Cys Cys Lys Lys Gln Phe Phe Val Ser Phe Lys Asp Ile Gly Trp
                325                 330                 335
Asn Asp Trp Ile Ile Ala Pro Ser Gly Tyr His Ala Asn Tyr Cys Glu
            340                 345                 350
Gly Glu Cys Pro Ser His Ile Ala Gly Thr Ser Gly Ser Ser Leu Ser
            355                 360                 365
Phe His Ser Thr Val Ile Asn His Tyr Arg Met Arg Gly His Ser Pro
            370                 375                 380
Phe Ala Asn Leu Lys Ser Cys Cys Val Pro Thr Lys Leu Arg Pro Met
385                 390                 395                 400
Ser Met Leu Tyr Tyr Asp Asp Gly Gln Asn Ile Ile Lys Lys Asp Ile
                405                 410                 415
Gln Asn Met Ile Val Glu Glu Cys Gly Cys Ser
            420                 425
```

<210> 22
<211> 408
<212> PRT
<213> HOMO SAPIEN

<400> 22
```
Pro Met Asp Gly Leu Pro Gly Arg Ala Leu Gly Ala Ala Cys Leu Leu
 1               5                   10                  15
Leu Leu Ala Ala Gly Trp Leu Gly Pro Glu Ala Trp Gly Ser Pro Thr
            20                  25                  30
Pro Pro Pro Thr Pro Ala Ala Pro Pro Pro Pro Pro Pro Gly Ser
            35                  40                  45
Pro Gly Gly Ser Gln Asp Thr Cys Thr Ser Cys Gly Gly Phe Arg Arg
    50                  55                  60
Pro Glu Glu Leu Gly Arg Val Asp Gly Asp Phe Leu Glu Ala Val Lys
65                  70                  75                  80
Arg His Ile Leu Ser Arg Leu Gln Met Arg Gly Arg Pro Asn Ile Thr
                85                  90                  95
His Ala Val Pro Lys Ala Ala Met Val Thr Ala Leu Arg Lys Leu His
```

```
                100                        105                       110
Ala Gly Lys Val Arg Glu Asp Gly Arg Val Glu Ile Pro His Leu Asp
            115                    120                    125
Gly His Ala Ser Pro Gly Ala Asp Gly Gln Glu Arg Val Ser Glu Ile
        130                    135                    140
Ile Ser Phe Ala Glu Thr Asp Gly Leu Ala Ser Ser Arg Val Arg Leu
145                    150                    155                    160
Tyr Phe Phe Ile Ser Asn Glu Gly Asn Gln Asn Leu Phe Val Val Gln
                165                    170                    175
Ala Ser Leu Trp Leu Tyr Leu Lys Leu Leu Pro Tyr Val Leu Glu Lys
            180                    185                    190
Gly Ser Arg Arg Lys Val Arg Val Lys Val Tyr Phe Gln Glu Gln Gly
            195                    200                    205
His Gly Asp Arg Trp Asn Met Val Glu Lys Arg Val Asp Leu Lys Arg
        210                    215                    220
Ser Gly Trp His Thr Phe Pro Leu Thr Glu Ala Ile Gln Ala Leu Phe
225                    230                    235                    240
Glu Arg Gly Glu Arg Arg Leu Asn Leu Asp Val Gln Cys Asp Ser Cys
                245                    250                    255
Gln Glu Leu Ala Val Val Pro Val Phe Val Asp Pro Gly Glu Glu Ser
            260                    265                    270
His Arg Pro Phe Val Val Val Gln Ala Arg Leu Gly Asp Ser Arg His
            275                    280                    285
Arg Ile Arg Lys Arg Gly Leu Glu Cys Asp Gly Arg Thr Asn Leu Cys
        290                    295                    300
Cys Arg Gln Gln Phe Phe Ile Asp Phe Arg Leu Ile Gly Trp Asn Asp
305                    310                    315                    320
Trp Ile Ile Ala Pro Thr Gly Tyr Tyr Gly Asn Tyr Cys Glu Gly Ser
                325                    330                    335
Cys Pro Ala Tyr Leu Ala Gly Val Pro Gly Ser Ala Ser Ser Phe His
            340                    345                    350
Thr Ala Val Val Asn Gln Tyr Arg Met Arg Gly Leu Asn Pro Gly Thr
            355                    360                    365
Val Asn Ser Cys Cys Ile Pro Thr Lys Leu Ser Thr Met Ser Met Leu
        370                    375                    380
Tyr Phe Asp Asp Glu Tyr Asn Ile Val Lys Arg Asp Val Pro Asn Met
385                    390                    395                    400
Ile Val Glu Glu Cys Gly Cys Ala
                405
```

<210> 23
<211> 561
<212> PRT
<213> HOMO SAPIEN

<400> 23
```
Pro Met Arg Asp Leu Pro Leu Thr Ser Leu Ala Leu Val Leu Ser Ala
1                   5                   10                      15
Leu Gly Ala Leu Leu Gly Thr Glu Ala Leu Arg Ala Glu Glu Pro Ala
            20                    25                    30
Val Gly Thr Ser Gly Leu Ile Phe Arg Glu Asp Leu Asp Trp Pro Pro
        35                    40                    45
Gly Ile Pro Gln Glu Pro Leu Cys Leu Val Ala Leu Gly Gly Asp Ser
    50                    55                    60
Asn Gly Ser Ser Ser Pro Leu Arg Val Val Gly Ala Leu Ser Ala Tyr
65                    70                    75                    80
```

Glu Gln Ala Phe Leu Gly Ala Val Gln Arg Ala Arg Trp Gly Pro Arg
                    85   90   95
Asp Leu Ala Thr Phe Gly Val Cys Asn Thr Gly Asp Arg Gln Ala Ala
                100   105   110
Leu Pro Ser Leu Arg Arg Leu Gly Ala Trp Leu Arg Asp Pro Gly Gly
            115   120   125
Gln Arg Leu Val Val Leu His Leu Glu Glu Val Thr Trp Glu Pro Thr
    130   135   140
Pro Ser Leu Arg Phe Gln Glu Pro Pro Gly Gly Ala Gly Pro Pro
145   150   155   160
Glu Leu Ala Leu Leu Val Leu Tyr Pro Gly Pro Gly Pro Glu Val Thr
                165   170   175
Val Thr Arg Ala Gly Leu Pro Gly Ala Gln Ser Leu Cys Pro Ser Arg
            180   185   190
Asp Thr Arg Tyr Leu Val Leu Ala Val Asp Arg Pro Ala Gly Ala Trp
            195   200   205
Arg Gly Ser Gly Leu Ala Leu Thr Leu Gln Pro Arg Gly Glu Asp Ser
    210   215   220
Arg Leu Ser Thr Ala Arg Leu Gln Ala Leu Leu Phe Gly Asp Asp His
225   230   235   240
Arg Cys Phe Thr Arg Met Thr Pro Ala Leu Leu Leu Leu Pro Arg Ser
                245   250   255
Glu Pro Ala Pro Leu Pro Ala His Gly Gln Leu Asp Thr Val Pro Phe
                260   265   270
Pro Pro Pro Arg Pro Ser Ala Glu Leu Glu Glu Ser Pro Pro Ser Ala
            275   280   285
Asp Pro Phe Leu Glu Thr Leu Thr Arg Leu Val Arg Ala Leu Arg Val
    290   295   300
Pro Pro Ala Arg Ala Ser Ala Pro Arg Leu Ala Leu Asp Pro Asp Ala
305   310   315   320
Leu Ala Gly Phe Pro Gln Gly Leu Val Asn Leu Ser Asp Pro Ala Ala
                325   330   335
Leu Glu Arg Leu Leu Asp Gly Glu Glu Pro Leu Leu Leu Leu Leu Arg
            340   345   350
Pro Thr Ala Ala Thr Thr Gly Asp Pro Ala Pro Leu His Asp Pro Thr
            355   360   365
Ser Ala Pro Trp Ala Thr Ala Leu Ala Arg Arg Val Ala Ala Glu Leu
    370   375   380
Gln Ala Ala Ala Ala Glu Leu Arg Ser Leu Pro Gly Leu Pro Pro Ala
385   390   395   400
Thr Ala Pro Leu Leu Ala Arg Leu Leu Ala Leu Cys Pro Gly Gly Pro
            405   410   415
Gly Gly Leu Gly Asp Pro Leu Arg Ala Leu Leu Leu Lys Ala Leu
            420   425   430
Gln Gly Leu Arg Val Glu Trp Arg Gly Arg Asp Pro Arg Gly Pro Gly
            435   440   445
Arg Ala Gln Arg Ser Ala Gly Ala Thr Ala Ala Asp Gly Pro Cys Ala
    450   455   460
Leu Arg Glu Leu Ser Val Asp Leu Arg Ala Glu Arg Ser Val Leu Ile
465   470   475   480
Pro Glu Thr Tyr Gln Ala Asn Asn Cys Gln Gly Val Cys Gly Trp Pro
                485   490   495
Gln Ser Asp Arg Asn Pro Arg Tyr Gly Asn His Val Val Leu Leu Leu
            500   505   510
Lys Met Gln Ala Arg Gly Ala Ala Leu Ala Arg Pro Pro Cys Cys Val
    515   520   525
Pro Thr Ala Tyr Ala Gly Lys Leu Leu Ile Ser Leu Ser Glu Glu Arg

```
Val Asn Ser Lys Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser
        355                 360                 365
Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val Val Leu Lys
        370                 375                 380
Asn Tyr Gln Asp Met Val Val Glu Gly Cys Gly Cys Arg
385                 390                 395
```

<210> 25
<211> 473
<212> PRT
<213> HOMO SAPIEN

<400> 25
```
Pro Met Ala Gly Ala Ser Arg Leu Leu Phe Leu Trp Leu Gly Cys Phe
 1               5                  10                  15
Cys Val Ser Leu Ala Gln Gly Glu Arg Pro Lys Pro Pro Phe Pro Glu
        20                  25                  30
Leu Arg Lys Ala Val Pro Gly Asp Arg Thr Ala Gly Gly Gly Pro Asp
        35                  40                  45
Ser Glu Leu Gln Pro Gln Asp Lys Val Ser Glu His Met Leu Arg Leu
        50                  55                  60
Tyr Asp Arg Tyr Ser Thr Val Gln Ala Ala Arg Thr Pro Gly Ser Leu
65                  70                  75                  80
Glu Gly Gly Ser Gln Pro Trp Arg Pro Arg Leu Leu Arg Glu Gly Asn
                85                  90                  95
Thr Val Arg Ser Phe Arg Ala Ala Ala Glu Thr Leu Glu Arg Lys
                100                 105                 110
Gly Leu Tyr Ile Phe Asn Leu Thr Ser Leu Thr Lys Ser Glu Asn Ile
                115                 120                 125
Leu Ser Ala Thr Leu Tyr Phe Cys Ile Gly Glu Leu Gly Asn Ile Ser
        130                 135                 140
Leu Ser Cys Pro Val Ser Gly Gly Cys Ser His His Ala Gln Arg Lys
145                 150                 155                 160
His Ile Gln Ile Asp Leu Ser Ala Trp Thr Leu Lys Phe Ser Arg Asn
                165                 170                 175
Gln Ser Gln Leu Leu Gly His Leu Ser Val Asp Met Ala Lys Ser His
                180                 185                 190
Arg Asp Ile Met Ser Trp Leu Ser Lys Asp Ile Thr Gln Phe Leu Arg
                195                 200                 205
Lys Ala Lys Glu Asn Glu Glu Phe Leu Ile Gly Phe Asn Ile Thr Ser
        210                 215                 220
Lys Gly Arg Gln Leu Pro Lys Arg Arg Leu Pro Phe Pro Glu Pro Tyr
225                 230                 235                 240
Ile Leu Val Tyr Ala Asn Asp Ala Ala Ile Ser Glu Pro Glu Ser Val
                245                 250                 255
Val Ser Ser Leu Gln Gly His Arg Asn Phe Pro Thr Gly Thr Val Pro
                260                 265                 270
Lys Trp Asp Ser His Ile Arg Ala Ala Leu Ser Ile Glu Arg Arg Lys
        275                 280                 285
Lys Arg Ser Thr Gly Val Leu Leu Pro Leu Gln Asn Asn Glu Leu Pro
        290                 295                 300
Gly Ala Glu Tyr Gln Tyr Lys Lys Asp Glu Val Trp Glu Glu Arg Lys
305                 310                 315                 320
Pro Tyr Lys Thr Leu Gln Ala Gln Ala Pro Glu Lys Ser Lys Asn Lys
                325                 330                 335
Lys Lys Gln Arg Lys Gly Pro His Arg Lys Ser Gln Thr Leu Gln Phe
```

```
                340                      345                        350
Asp Glu Gln Thr Leu Lys Lys Ala Arg Arg Lys Gln Trp Ile Glu Pro
            355                      360                      365
Arg Asn Cys Ala Arg Arg Tyr Leu Lys Val Asp Phe Ala Asp Ile Gly
        370                      375                      380
Trp Ser Glu Trp Ile Ile Ser Pro Lys Ser Phe Asp Ala Tyr Tyr Cys
385                      390                      395                      400
Ser Gly Ala Cys Gln Phe Pro Met Pro Lys Ser Leu Lys Pro Ser Asn
                405                      410                      415
His Ala Thr Ile Gln Ser Ile Val Arg Ala Val Gly Val Val Pro Gly
            420                      425                      430
Ile Pro Glu Pro Cys Cys Val Pro Glu Lys Met Ser Ser Leu Ser Ile
        435                      440                      445
Leu Phe Phe Asp Glu Asn Lys Asn Val Val Leu Lys Val Tyr Pro Asn
    450                      455                      460
Met Thr Val Glu Ser Cys Ala Cys Arg
465                      470


<210> 26
<211> 479
<212> PRT
<213> HOMO SAPIEN

<400> 26
Pro Met Ala His Val Pro Ala Arg Thr Ser Pro Gly Pro Gly Pro Gln
1                   5                   10                      15
Leu Leu Leu Leu Leu Leu Pro Leu Phe Leu Leu Leu Leu Arg Asp Val
            20                      25                      30
Ala Gly Ser His Arg Ala Pro Ala Trp Ser Ala Leu Pro Ala Ala Ala
        35                      40                      45
Asp Gly Leu Gln Gly Asp Arg Asp Leu Gln Arg His Pro Gly Asp Ala
    50                      55                      60
Ala Ala Thr Leu Gly Pro Ser Ala Gln Asp Met Val Ala Val His Met
65                      70                      75                      80
His Arg Leu Tyr Glu Lys Tyr Ser Arg Gln Gly Ala Arg Pro Gly Gly
                85                      90                      95
Gly Asn Thr Val Arg Ser Phe Arg Ala Arg Leu Glu Val Val Asp Gln
            100                     105                     110
Lys Ala Val Tyr Phe Phe Asn Leu Thr Ser Met Gln Asp Ser Glu Met
        115                     120                     125
Ile Leu Thr Ala Thr Phe His Phe Tyr Ser Glu Pro Pro Arg Trp Pro
    130                     135                     140
Arg Ala Leu Glu Val Leu Cys Lys Pro Arg Ala Lys Asn Ala Ser Gly
145                     150                     155                     160
Arg Pro Leu Pro Leu Gly Pro Pro Thr Arg Gln His Leu Leu Phe Arg
                165                     170                     175
Ser Leu Ser Gln Asn Thr Ala Thr Gln Gly Leu Leu Arg Gly Ala Met
            180                     185                     190
Ala Leu Ala Pro Pro Pro Arg Gly Leu Trp Gln Ala Lys Asp Ile Ser
        195                     200                     205
Pro Ile Val Lys Ala Ala Arg Arg Asp Gly Glu Leu Leu Leu Ser Ala
    210                     215                     220
Gln Leu Asp Ser Glu Glu Arg Asp Pro Gly Val Pro Arg Pro Ser Pro
225                     230                     235                     240
Tyr Ala Pro Tyr Ile Leu Val Tyr Ala Asn Asp Leu Ala Ile Ser Glu
                245                     250                     255
```

```
Pro Asn Ser Val Ala Val Thr Leu Gln Arg Tyr Asp Pro Phe Pro Ala
            260                 265             270
Gly Asp Pro Glu Pro Arg Ala Ala Pro Asn Asn Ser Ala Asp Pro Arg
            275             280             285
Val Arg Arg Ala Ala Gln Ala Thr Gly Pro Leu Gln Asp Asn Glu Leu
    290             295             300
Pro Gly Leu Asp Glu Arg Pro Pro Arg Ala His Ala Gln His Phe His
305             310             315             320
Lys His Gln Leu Trp Pro Ser Pro Phe Arg Ala Leu Lys Pro Arg Pro
            325             330             335
Gly Arg Lys Asp Arg Arg Lys Lys Gly Gln Glu Val Phe Met Ala Ala
            340             345             350
Ser Gln Val Leu Asp Phe Asp Glu Lys Thr Met Gln Lys Ala Arg Arg
            355             360             365
Lys Gln Trp Asp Glu Pro Arg Val Cys Ser Arg Arg Tyr Leu Lys Val
    370             375             380
Asp Phe Ala Asp Ile Gly Trp Asn Glu Trp Ile Ile Ser Pro Lys Ser
385             390             395             400
Phe Asp Ala Tyr Tyr Cys Ala Gly Ala Cys Glu Phe Pro Met Pro Lys
            405             410             415
Ile Val Arg Pro Ser Asn His Ala Thr Ile Gln Ser Ile Val Arg Ala
            420             425             430
Val Gly Ile Ile Pro Gly Ile Pro Glu Pro Cys Cys Val Pro Asp Lys
            435             440             445
Met Asn Ser Leu Gly Val Leu Phe Leu Asp Glu Asn Arg Asn Val Val
            450             455             460
Leu Lys Val Tyr Pro Asn Met Ser Val Asp Thr Cys Ala Cys Arg
465             470             475


<210> 27
<211> 409
<212> PRT
<213> HOMO SAPIEN

<400> 27
Pro Met Ile Pro Gly Asn Arg Met Leu Met Val Val Leu Leu Cys Gln
  1           5               10              15
Val Leu Leu Gly Gly Ala Ser His Ala Ser Leu Ile Pro Glu Thr Gly
            20              25              30
Lys Lys Lys Val Ala Glu Ile Gln Gly His Ala Gly Gly Arg Arg Ser
            35              40              45
Gly Gln Ser His Glu Leu Leu Arg Asp Phe Glu Ala Thr Leu Leu Gln
    50              55              60
Met Phe Gly Leu Arg Arg Arg Pro Gln Pro Ser Lys Ser Ala Val Ile
65              70              75              80
Pro Asp Tyr Met Arg Asp Leu Tyr Arg Leu Gln Ser Gly Glu Glu Glu
            85              90              95
Glu Glu Gln Ile His Ser Thr Gly Leu Glu Tyr Pro Glu Arg Pro Ala
            100             105             110
Ser Arg Ala Asn Thr Val Arg Ser Phe His His Glu Glu His Leu Glu
            115             120             125
Asn Ile Pro Gly Thr Ser Glu Asn Ser Ala Phe Arg Phe Leu Phe Asn
    130             135             140
Leu Ser Ser Ile Pro Glu Asn Glu Ala Ile Ser Ser Ala Glu Leu Arg
145             150             155             160
Leu Phe Arg Glu Gln Val Asp Gln Gly Pro Asp Trp Glu Arg Gly Phe
```

```
                    165                     170                     175
His Arg Ile Asn Ile Tyr Glu Val Met Lys Pro Pro Ala Glu Val Val
                180                     185                     190
Pro Gly His Leu Ile Thr Arg Leu Leu Asp Thr Arg Leu Val His His
            195                     200                     205
Asn Val Thr Arg Trp Glu Thr Phe Asp Val Ser Pro Ala Val Leu Arg
        210                     215                     220
Trp Thr Arg Glu Lys Gln Pro Asn Tyr Gly Leu Ala Ile Glu Val Thr
225                     230                     235                     240
His Leu His Gln Thr Arg Thr His Gln Gly Gln His Val Arg Ile Ser
                245                     250                     255
Arg Ser Leu Pro Gln Gly Ser Gly Asn Trp Ala Gln Leu Arg Pro Leu
            260                     265                     270
Leu Val Thr Phe Gly His Asp Gly Arg Gly His Ala Leu Thr Arg Arg
        275                     280                     285
Arg Arg Ala Lys Arg Ser Pro Lys His His Ser Gln Arg Ala Arg Lys
    290                     295                     300
Lys Asn Lys Asn Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp
305                     310                     315                     320
Val Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe
                325                     330                     335
Tyr Cys His Gly Asp Cys Pro Phe Pro Leu Ala Asp His Leu Asn Ser
            340                     345                     350
Thr Asn His Ala Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Ser
        355                     360                     365
Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met
    370                     375                     380
Leu Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu
385                     390                     395                     400
Met Val Val Glu Gly Cys Gly Cys Arg
                405


<210> 28
<211> 455
<212> PRT
<213> HOMO SAPIEN

<400> 28
Pro Met His Leu Thr Val Phe Leu Leu Lys Gly Ile Val Gly Phe Leu
  1               5                      10                      15
Trp Ser Cys Trp Val Leu Val Gly Tyr Ala Lys Gly Gly Leu Gly Asp
                20                      25                      30
Asn His Val His Ser Ser Phe Ile Tyr Arg Arg Leu Arg Asn His Glu
            35                      40                      45
Arg Arg Glu Ile Gln Arg Glu Ile Leu Ser Ile Leu Gly Leu Pro His
    50                      55                      60
Arg Pro Arg Pro Phe Ser Pro Gly Lys Gln Ala Ser Ser Ala Pro Leu
65                      70                      75                      80
Phe Met Leu Asp Leu Tyr Asn Ala Met Thr Asn Glu Glu Asn Pro Glu
                85                      90                      95
Glu Ser Glu Tyr Ser Val Arg Ala Ser Leu Ala Glu Glu Thr Arg Gly
            100                     105                     110
Ala Arg Lys Gly Tyr Pro Ala Ser Pro Asn Gly Tyr Pro Arg Arg Ile
        115                     120                     125
Gln Leu Ser Arg Thr Thr Pro Leu Thr Thr Gln Ser Pro Pro Leu Ala
    130                     135                     140
```

```
Ser Leu His Asp Thr Asn Phe Leu Asn Asp Ala Asp Met Val Met Ser
145                 150                 155                 160
Phe Val Asn Leu Val Glu Arg Asp Lys Asp Phe Ser His Gln Arg Arg
                165                 170                 175
His Tyr Lys Glu Phe Arg Phe Asp Leu Thr Gln Ile Pro His Gly Glu
            180                 185                 190
Ala Val Thr Ala Ala Glu Phe Arg Ile Tyr Lys Asp Arg Ser Asn Asn
        195                 200                 205
Arg Phe Glu Asn Glu Thr Ile Lys Ile Ser Ile Tyr Gln Ile Ile Lys
    210                 215                 220
Glu Tyr Thr Asn Arg Asp Ala Asp Leu Phe Leu Leu Asp Thr Arg Lys
225                 230                 235                 240
Ala Gln Ala Leu Asp Val Gly Trp Leu Val Phe Asp Ile Thr Val Thr
                245                 250                 255
Ser Asn His Trp Val Ile Asn Pro Gln Asn Asn Leu Gly Leu Gln Leu
            260                 265                 270
Cys Ala Glu Thr Gly Asp Gly Arg Ser Ile Asn Val Lys Ser Ala Gly
        275                 280                 285
Leu Val Gly Arg Gln Gly Pro Gln Ser Lys Gln Pro Phe Met Val Ala
        290                 295                 300
Phe Phe Lys Ala Ser Glu Val Leu Leu Arg Ser Val Arg Ala Ala Asn
305                 310                 315                 320
Lys Arg Lys Asn Gln Asn Arg Asn Lys Ser Ser Ser His Gln Asp Ser
                325                 330                 335
Ser Arg Met Ser Ser Val Gly Asp Tyr Asn Thr Ser Glu Gln Lys Gln
            340                 345                 350
Ala Cys Lys Lys His Glu Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp
        355                 360                 365
Gln Asp Trp Ile Ile Ala Pro Glu Gly Tyr Ala Ala Phe Tyr Cys Asp
    370                 375                 380
Gly Glu Cys Ser Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His
385                 390                 395                 400
Ala Ile Val Gln Thr Leu Val His Leu Met Phe Pro Asp His Val Pro
                405                 410                 415
Lys Pro Cys Cys Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr
                420                 425                 430
Phe Asp Asp Ser Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val
            435                 440                 445
Val Arg Ser Cys Gly Cys His
    450                 455


<210> 29
<211> 112
<212> PRT
<213> HOMO SAPIEN

<400> 29
Pro Ser Ser Ala Ser Asp Tyr Asn Ser Ser Glu Leu Lys Thr Ala Cys
 1               5                   10                  15
Arg Lys His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Trp
            20                  25                  30
Ile Ile Ala Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys
        35                  40                  45
Ser Pro Pro Leu Asn His Thr Ala Asn His Ala Ile Val Gln Thr Leu
    50                  55                  60
Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys Ala Pro
```

Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Asn Ser Asn
                85   90   95
Val Ile Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys His
                100   105   110

<210> 30
<211> 112
<212> PRT
<213> HOMO SAPIEN

<400> 30
Pro Ala Asn Val Ala Glu Asn Ser Ser Ser Asp Gln Arg Gln Ala Cys
 1   5   10   15
Lys Lys His Glu Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln Trp
                20   25   30
Ile Ile Ala Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys
                35   40   45
Ala Phe Pro Leu Asn Ser Ala Thr Asn His Ala Ile Val Gln Thr Leu
        50   55   60
Val His Phe Ile Asn Pro Glu Thr Val Pro Lys Pro Cys Cys Ala Pro
 65   70   75   80
Thr Gln Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn
                85   90   95
Val Ile Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys His
                100   105   110

<210> 31
<211> 403
<212> PRT
<213> HOMO SAPIEN

<400> 31
Pro Met Thr Ala Leu Pro Gly Pro Leu Trp Leu Leu Gly Leu Ala Leu
 1   5   10   15
Cys Ala Leu Gly Gly Gly Gly Pro Gly Leu Arg Pro Pro Pro Gly Cys
                20   25   30
Pro Gln Arg Arg Leu Gly Ala Arg Glu Arg Arg Asp Val Gln Arg Glu
            35   40   45
Ile Leu Ala Val Leu Gly Leu Pro Gly Arg Pro Arg Pro Arg Ala Pro
        50   55   60
Pro Ala Ala Ser Arg Leu Pro Ala Ser Ala Pro Leu Phe Met Leu Asp
 65   70   75   80
Leu Tyr His Ala Met Ala Gly Asp Asp Asp Glu Asp Gly Ala Pro Ala
                85   90   95
Glu Arg Arg Leu Gly Arg Ala Asp Leu Val Met Ser Phe Val Asn Met
                100   105   110
Val Glu Arg Asp Arg Ala Leu Gly His Gln Glu Pro His Trp Lys Glu
            115   120   125
Phe Arg Phe Asp Leu Thr Gln Ile Pro Ala Gly Glu Ala Val Thr Ala
        130   135   140
Ala Glu Phe Arg Ile Tyr Lys Val Pro Ser Ile His Leu Leu Asn Arg
145   150   155   160
Thr Leu His Val Ser Met Phe Gln Val Val Gln Glu Gln Ser Asn Arg
            165   170   175

```
Glu Ser Asp Leu Phe Phe Leu Asp Leu Gln Thr Leu Arg Ala Gly Asp
            180                 185                 190
Glu Gly Trp Leu Val Leu Asp Val Thr Ala Ala Ser Asp Cys Trp Leu
            195                 200                 205
Leu Lys Arg His Lys Asp Leu Gly Leu Arg Leu Tyr Val Glu Thr Glu
    210                 215                 220
Asp Gly His Ser Val Asp Pro Gly Leu Ala Gly Leu Leu Gly Gln Arg
225                 230                 235                 240
Ala Pro Arg Ser Gln Gln Pro Phe Val Val Thr Phe Phe Arg Ala Ser
            245                 250                 255
Pro Ser Pro Ile Arg Thr Pro Arg Ala Val Arg Pro Leu Arg Arg Arg
            260                 265                 270
Gln Pro Lys Lys Ser Asn Glu Leu Pro Gln Ala Asn Arg Leu Pro Gly
            275                 280                 285
Ile Phe Asp Asp Val His Gly Ser His Gly Arg Gln Val Cys Arg Arg
            290                 295                 300
His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Leu Asp Trp Val
305                 310                 315                 320
Ile Ala Pro Gln Gly Tyr Ser Ala Tyr Tyr Cys Glu Gly Glu Cys Ser
            325                 330                 335
Phe Pro Leu Asp Ser Cys Met Asn Ala Thr Asn His Ala Ile Leu Gln
            340                 345                 350
Ser Leu Val His Leu Met Lys Pro Asn Ala Val Pro Lys Ala Cys Cys
            355                 360                 365
Ala Pro Thr Lys Leu Ser Ala Thr Ser Val Leu Tyr Tyr Asp Ser Ser
            370                 375                 380
Asn Asn Val Ile Leu Arg Lys His Arg Asn Met Val Val Lys Ala Cys
385                 390                 395                 400
Gly Cys His


<210> 32
<211> 425
<212> PRT
<213> HOMO SAPIEN

<400> 32
Pro Met Gly Ser Leu Val Leu Thr Leu Cys Ala Leu Phe Cys Leu Ala
  1                 5                  10                  15
Ala Tyr Leu Val Ser Gly Ser Pro Ile Met Asn Leu Glu Gln Ser Pro
            20                  25                  30
Leu Glu Glu Asp Met Ser Leu Phe Gly Asp Val Phe Ser Glu Gln Asp
            35                  40                  45
Gly Val Asp Phe Asn Thr Leu Leu Gln Ser Met Lys Asp Glu Phe Leu
            50                  55                  60
Lys Thr Leu Asn Leu Ser Asp Ile Pro Thr Gln Asp Ser Ala Lys Val
65                  70                  75                  80
Asp Pro Pro Glu Tyr Met Leu Glu Leu Tyr Asn Lys Phe Ala Thr Asp
                85                  90                  95
Arg Thr Ser Met Pro Ser Ala Asn Ile Ile Arg Ser Phe Lys Asn Glu
            100                 105                 110
Asp Leu Phe Ser Gln Pro Val Ser Phe Asn Gly Leu Arg Lys Tyr Pro
            115                 120                 125
Leu Leu Phe Asn Val Ser Ile Pro His His Glu Glu Val Ile Met Ala
    130                 135                 140
Glu Leu Arg Leu Tyr Thr Leu Val Gln Arg Asp Arg Met Ile Tyr Asp
```

```
145                    150                    155                    160
Gly Val Asp Arg Lys Ile Thr Ile Phe Glu Val Leu Glu Ser Lys Gly
                    165                    170                    175
Asp Asn Glu Gly Glu Arg Asn Met Leu Val Leu Val Ser Gly Glu Ile
                    180                    185                    190
Tyr Gly Thr Asn Ser Glu Trp Glu Thr Phe Asp Val Thr Asp Ala Ile
                    195                    200                    205
Arg Arg Trp Gln Lys Ser Gly Ser Ser Thr His Gln Leu Glu Val His
                    210                    215                    220
Ile Glu Ser Lys His Asp Glu Ala Glu Asp Ala Ser Ser Gly Arg Leu
225                    230                    235                    240
Glu Ile Asp Thr Ser Ala Gln Asn Lys His Asn Pro Leu Leu Ile Val
                    245                    250                    255
Phe Ser Asp Asp Gln Ser Ser Asp Lys Glu Arg Lys Glu Glu Leu Asn
                    260                    265                    270
Glu Met Ile Ser His Glu Gln Leu Pro Glu Leu Asp Asn Leu Gly Leu
                    275                    280                    285
Asp Ser Phe Ser Ser Gly Pro Gly Glu Glu Ala Leu Leu Gln Met Arg
                    290                    295                    300
Ser Asn Ile Ile Tyr Asp Ser Thr Ala Arg Ile Arg Arg Asn Ala Lys
305                    310                    315                    320
Gly Asn Tyr Cys Lys Arg Thr Pro Leu Tyr Ile Asp Phe Lys Glu Ile
                    325                    330                    335
Gly Trp Asp Ser Trp Ile Ile Ala Pro Pro Gly Tyr Glu Ala Tyr Glu
                    340                    345                    350
Cys Arg Gly Val Cys Asn Tyr Pro Leu Ala Glu His Leu Thr Pro Thr
                    355                    360                    365
Lys His Ala Ile Ile Gln Ala Leu Val His Leu Lys Asn Ser Gln Lys
                    370                    375                    380
Ala Ser Lys Ala Cys Cys Val Pro Thr Lys Leu Glu Pro Ile Ser Ile
385                    390                    395                    400
Leu Tyr Leu Asp Lys Gly Val Val Thr Tyr Lys Phe Lys Tyr Glu Gly
                    405                    410                    415
Met Ala Val Ser Glu Cys Gly Cys Arg
                    420                    425


<210> 33
<211> 408
<212> PRT
<213> HOMO SAPIEN


<400> 33
Pro Met Val Leu Ala Ala Pro Leu Leu Leu Gly Phe Leu Leu Leu Ala
 1                  5                    10                   15
Leu Glu Leu Arg Pro Arg Gly Glu Ala Ala Glu Gly Pro Ala Ala Ala
                    20                   25                   30
Ala Ala Ala Ala Ala Ala Ala Ala Ala Gly Val Gly Gly Glu Arg
          35                   40                   45
Ser Ser Arg Pro Ala Pro Ser Val Ala Pro Glu Pro Asp Gly Cys Pro
    50                   55                   60
Val Cys Val Trp Arg Gln His Ser Arg Glu Leu Arg Leu Glu Ser Ile
65                   70                   75                   80
Lys Ser Gln Ile Leu Ser Lys Leu Arg Leu Lys Glu Ala Pro Asn Ile
              85                   90                   95
Ser Arg Glu Val Val Lys Gln Leu Leu Pro Lys Ala Pro Pro Leu Gln
              100                  105                  110
```

```
Gln Ile Leu Asp Leu His Asp Phe Gln Gly Asp Ala Leu Gln Pro Glu
        115                 120                 125
Asp Phe Leu Glu Glu Asp Glu Tyr His Ala Thr Thr Glu Thr Val Ile
        130                 135                 140
Ser Met Ala Gln Glu Thr Asp Pro Ala Val Gln Thr Asp Gly Ser Pro
145                 150                 155                 160
Leu Cys Cys His Phe His Phe Ser Pro Lys Val Met Phe Thr Lys Val
                165                 170                 175
Leu Lys Ala Gln Leu Trp Val Tyr Leu Arg Pro Val Pro Arg Pro Ala
                180                 185                 190
Thr Val Tyr Leu Gln Ile Leu Arg Leu Lys Pro Leu Thr Gly Glu Gly
                195                 200                 205
Thr Ala Gly Gly Gly Gly Gly Gly Arg Arg His Ile Arg Ile Arg Ser
        210                 215                 220
Leu Lys Ile Glu Leu His Ser Arg Ser Gly His Trp Gln Ser Ile Asp
225                 230                 235                 240
Phe Lys Gln Val Leu His Ser Trp Phe Arg Gln Pro Gln Ser Asn Trp
                245                 250                 255
Gly Ile Glu Ile Asn Ala Phe Asp Pro Ser Gly Thr Asp Leu Ala Val
                260                 265                 270
Thr Ser Leu Gly Pro Gly Ala Glu Gly Leu His Pro Phe Met Glu Leu
        275                 280                 285
Arg Val Leu Glu Asn Thr Lys Arg Ser Arg Arg Asn Leu Gly Leu Asp
        290                 295                 300
Cys Asp Glu His Ser Ser Glu Ser Arg Cys Cys Arg Tyr Pro Leu Thr
305                 310                 315                 320
Val Asp Phe Glu Ala Phe Gly Trp Asp Trp Ile Ile Ala Pro Lys Arg
                325                 330                 335
Tyr Lys Ala Asn Tyr Cys Ser Gly Gln Cys Glu Tyr Met Phe Met Gln
                340                 345                 350
Lys Tyr Pro His Thr His Leu Val Gln Gln Ala Asn Pro Arg Gly Ser
        355                 360                 365
Ala Gly Pro Cys Cys Thr Pro Thr Lys Met Ser Pro Ile Asn Met Leu
        370                 375                 380
Tyr Phe Asn Asp Lys Gln Gln Ile Ile Tyr Gly Lys Ile Pro Gly Met
385                 390                 395                 400
Val Val Asp Arg Cys Gly Cys Ser
                405
```

<210> 34
<211> 393
<212> PRT
<213> HOMO SAPIEN

<400> 34
```
Pro Met Val Leu Leu Ser Ile Leu Arg Ile Leu Phe Leu Cys Glu Leu
 1               5                   10                  15
Val Leu Phe Met Glu His Arg Ala Gln Met Ala Glu Gly Gly Gln Ser
                20                  25                  30
Phe Ile Ala Leu Leu Ala Glu Ala Pro Thr Leu Pro Leu Ile Glu Glu
            35                  40                  45
Met Leu Glu Glu Ser Pro Gly Glu Gln Pro Arg Lys Pro Arg Leu Leu
        50                  55                  60
Gly His Ser Leu Arg Tyr Met Leu Glu Leu Tyr Arg Arg Ser Ala Asp
65                  70                  75                  80
Ser His Gly His Pro Arg Glu Asn Arg Thr Ile Gly Ala Thr Met Val
```

```
                    85                       90                          95
Arg Leu Val Lys Pro Leu Thr Ser Val Ala Arg Pro His Arg Gly Thr
                100                     105                     110
Trp His Ile Gln Ile Leu Gly Phe Pro Leu Arg Pro Asn Arg Gly Leu
            115                     120                     125
Tyr Gln Leu Val Arg Ala Thr Val Val Tyr Arg His His Leu Gln Leu
            130                     135                     140
Thr Arg Phe Asn Leu Ser Cys His Val Glu Pro Trp Val Gln Lys Asn
145                     150                     155                     160
Pro Thr Asn His Phe Pro Ser Ser Glu Gly Asp Ser Ser Lys Pro Ser
                165                     170                     175
Leu Met Ser Asn Ala Trp Lys Glu Met Asp Ile Thr Gln Leu Val Gln
            180                     185                     190
Gln Arg Phe Trp Asn Asn Lys Gly His Arg Ile Leu Arg Leu Arg Phe
            195                     200                     205
Met Cys Gln Gln Gln Lys Asp Ser Gly Gly Leu Glu Leu Trp His Gly
            210                     215                     220
Thr Ser Ser Leu Asp Ile Ala Phe Leu Leu Leu Tyr Phe Asn Asp Thr
225                     230                     235                     240
His Lys Ser Ile Arg Lys Ala Lys Phe Leu Pro Arg Gly Met Glu Glu
                245                     250                     255
Phe Met Glu Arg Glu Ser Leu Leu Arg Arg Thr Arg Gln Ala Asp Gly
                260                     265                     270
Ile Ser Ala Glu Val Thr Ala Ser Ser Ser Lys His Ser Gly Pro Glu
            275                     280                     285
Asn Asn Gln Cys Ser Leu His Pro Phe Gln Ile Ser Phe Arg Gln Leu
            290                     295                     300
Gly Trp Asp His Trp Ile Ile Ala Pro Pro Phe Tyr Thr Pro Asn Tyr
305                     310                     315                     320
Cys Lys Gly Thr Cys Leu Arg Val Leu Arg Asp Gly Leu Asn Ser Pro
                325                     330                     335
Asn His Ala Ile Ile Gln Asn Leu Ile Asn Gln Leu Val Asp Gln Ser
            340                     345                     350
Val Pro Arg Pro Ser Cys Val Pro Tyr Lys Tyr Val Pro Ile Ser Val
            355                     360                     365
Leu Met Ile Glu Ala Asn Gly Ser Ile Leu Tyr Lys Glu Tyr Glu Gly
            370                     375                     380
Met Ile Ala Glu Ser Cys Thr Cys Arg
385                     390
```

<210> 35
<211> 134
<212> PRT
<213> HOMO SAPIEN

<400> 35
```
Pro Met Arg Lys His Val Leu Ala Ala Ser Phe Ser Met Leu Ser Leu
1                       5                       10                      15
Leu Val Ile Met Gly Asp Thr Asp Ser Lys Thr Asp Ser Ser Phe Ile
                20                      25                      30
Met Asp Ser Asp Pro Arg Arg Cys Met Arg His His Tyr Val Asp Ser
            35                      40                      45
Ile Ser His Pro Leu Tyr Lys Cys Ser Ser Lys Met Val Leu Leu Ala
            50                      55                      60
Arg Cys Glu Gly His Cys Ser Gln Ala Ser Arg Ser Glu Pro Leu Val
65                      70                      75                      80
```

```
Ser Phe Ser Thr Val Leu Lys Gln Pro Phe Arg Ser Ser Cys His Cys
                85                  90                  95
Cys Arg Pro Gln Thr Ser Lys Leu Lys Ala Leu Arg Leu Arg Cys Ser
            100                 105                 110
Gly Gly Met Arg Leu Thr Ala Thr Tyr Arg Tyr Ile Leu Ser Cys His
        115                 120                 125
Cys Glu Glu Cys Asn Ser
        130


<210> 36
<211> 373
<212> PRT
<213> HOMO SAPIEN

<400> 36
Pro Met Pro Pro Pro Gln Gln Gly Pro Cys Gly His His Leu Leu Leu
 1               5                  10                  15
Leu Leu Ala Leu Leu Leu Pro Ser Leu Pro Leu Thr Arg Ala Pro Val
            20                  25                  30
Pro Pro Gly Pro Ala Ala Ala Leu Leu Gln Ala Leu Gly Leu Arg Asp
        35                  40                  45
Glu Pro Gln Gly Ala Pro Arg Leu Arg Pro Val Pro Pro Val Met Trp
    50                  55                  60
Arg Leu Phe Arg Arg Arg Asp Pro Gln Glu Thr Arg Ser Gly Ser Arg
65                  70                  75                  80
Arg Thr Ser Pro Gly Val Thr Leu Gln Pro Cys His Val Glu Glu Leu
                85                  90                  95
Gly Val Ala Gly Asn Ile Val Arg His Ile Pro Asp Arg Gly Ala Pro
            100                 105                 110
Thr Arg Ala Ser Glu Pro Val Ser Ala Ala Gly His Cys Pro Glu Trp
        115                 120                 125
Thr Val Val Phe Asp Leu Ser Ala Val Glu Pro Ala Glu Arg Pro Ser
    130                 135                 140
Arg Ala Arg Leu Glu Leu Arg Phe Ala Ala Ala Ala Ala Ala Ala Pro
145                 150                 155                 160
Glu Gly Gly Trp Glu Leu Ser Val Ala Gln Ala Gly Gln Gly Ala Gly
                165                 170                 175
Ala Asp Pro Gly Pro Val Leu Leu Arg Gln Leu Val Pro Ala Leu Gly
            180                 185                 190
Pro Pro Val Arg Ala Glu Leu Leu Gly Ala Ala Trp Ala Arg Asn Ala
        195                 200                 205
Ser Trp Pro Arg Ser Leu Arg Leu Ala Leu Ala Leu Arg Pro Arg Ala
    210                 215                 220
Pro Ala Ala Cys Ala Arg Leu Ala Glu Ala Ser Leu Leu Leu Val Thr
225                 230                 235                 240
Leu Asp Pro Arg Leu Cys His Pro Leu Ala Arg Pro Arg Arg Asp Ala
            245                 250                 255
Glu Pro Val Leu Gly Gly Gly Pro Gly Gly Ala Cys Arg Ala Arg Arg
            260                 265                 270
Leu Tyr Val Ser Phe Arg Glu Val Gly Trp His Arg Trp Val Ile Ala
        275                 280                 285
Pro Arg Gly Phe Leu Ala Asn Tyr Cys Gln Gly Gln Cys Ala Leu Pro
    290                 295                 300
Val Ala Leu Ser Gly Ser Gly Gly Pro Pro Ala Leu Asn His Ala Val
305                 310                 315                 320
Leu Arg Ala Leu Met His Ala Ala Ala Pro Gly Ala Ala Asp Leu Pro
```

```
                    325                         330                         335
Cys Cys Val Pro Ala Arg Leu Ser Pro Ile Ser Val Leu Phe Phe Asp
                340                         345                         350
Asn Ser Asp Asn Val Val Leu Arg Gln Tyr Glu Asp Met Val Val Asp
            355                         360                         365
Glu Cys Gly Cys Arg
        370


<210> 37
<211> 502
<212> PRT
<213> HOMO SAPIEN

<400> 37
Pro Met Arg Leu Pro Lys Leu Leu Thr Phe Leu Leu Trp Tyr Leu Ala
 1                   5                   10                  15
Trp Leu Asp Leu Glu Phe Ile Cys Thr Val Leu Gly Ala Pro Asp Leu
                20                      25                      30
Gly Gln Arg Pro Gln Gly Ser Arg Pro Gly Leu Ala Lys Ala Glu Ala
            35                      40                      45
Lys Glu Arg Pro Pro Leu Ala Arg Asn Val Phe Arg Pro Gly Gly His
    50                      55                      60
Ser Tyr Gly Gly Gly Ala Thr Asn Ala Asn Ala Arg Ala Lys Gly Gly
65                      70                      75                      80
Thr Gly Gln Thr Gly Gly Leu Thr Gln Pro Lys Lys Asp Glu Pro Lys
                85                      90                      95
Lys Leu Pro Pro Arg Pro Gly Gly Pro Glu Pro Lys Pro Gly His Pro
                100                     105                     110
Pro Gln Thr Arg Gln Ala Thr Ala Arg Thr Val Thr Pro Lys Gly Gln
            115                     120                     125
Leu Pro Gly Gly Lys Ala Pro Pro Lys Ala Gly Ser Val Pro Ser Ser
    130                     135                     140
Phe Leu Leu Lys Lys Ala Arg Glu Pro Gly Pro Pro Arg Glu Pro Lys
145                     150                     155                     160
Glu Pro Phe Arg Pro Pro Ile Thr Pro His Glu Tyr Met Leu Ser
                165                     170                     175
Leu Tyr Arg Thr Leu Ser Asp Ala Asp Arg Lys Gly Gly Asn Ser Ser
                180                     185                     190
Val Lys Leu Glu Ala Gly Leu Ala Asn Thr Ile Thr Ser Phe Ile Asp
            195                     200                     205
Lys Gly Gln Asp Asp Arg Gly Pro Val Val Arg Lys Gln Arg Tyr Val
    210                     215                     220
Phe Asp Ile Ser Ala Leu Glu Lys Asp Gly Leu Leu Gly Ala Glu Leu
225                     230                     235                     240
Arg Ile Leu Arg Lys Lys Pro Ser Asp Thr Ala Lys Pro Ala Val Pro
                245                     250                     255
Arg Ser Arg Arg Ala Ala Gln Leu Lys Leu Ser Ser Cys Pro Ser Gly
                260                     265                     270
Arg Gln Pro Ala Ala Leu Leu Asp Val Arg Ser Val Pro Gly Leu Asp
            275                     280                     285
Gly Ser Gly Trp Glu Val Phe Asp Ile Trp Lys Leu Phe Arg Asn Phe
        290                     295                     300
Lys Asn Ser Ala Gln Leu Cys Leu Glu Leu Glu Ala Trp Glu Arg Gly
305                     310                     315                     320
Arg Thr Val Asp Leu Arg Gly Leu Gly Phe Asp Arg Ala Ala Arg Gln
                325                     330                     335
```

```
Val His Glu Lys Ala Leu Phe Leu Val Phe Gly Arg Thr Lys Lys Arg
            340                 345                 350
Asp Leu Phe Phe Asn Glu Ile Lys Ala Arg Ser Gly Gln Asp Asp Lys
            355                 360                 365
Thr Val Tyr Glu Tyr Leu Phe Ser Gln Arg Arg Lys Arg Arg Ala Pro
        370                 375                 380
Ser Ala Thr Arg Gln Gly Lys Arg Pro Ser Lys Asn Leu Lys Ala Arg
385                 390                 395                 400
Cys Ser Arg Lys Ala Leu His Val Asn Phe Lys Asp Met Gly Trp Asp
            405                 410                 415
Asp Trp Ile Ile Ala Pro Leu Glu Tyr Glu Ala Phe His Cys Glu Gly
            420                 425                 430
Leu Cys Glu Phe Pro Leu Arg Ser His Leu Glu Pro Thr Asn His Ala
            435                 440                 445
Val Ile Gln Thr Leu Met Asn Ser Met Asp Pro Glu Ser Thr Pro Pro
        450                 455                 460
Thr Cys Cys Val Pro Thr Arg Leu Ser Pro Ile Ser Ile Leu Phe Ile
465                 470                 475                 480
Asp Ser Ala Asn Asn Val Val Tyr Lys Gln Tyr Glu Asp Met Val Val
            485                 490                 495
Glu Ser Cys Gly Cys Arg
            500
```

```
Pro Met Gln Lys Leu Gln Leu Cys Val Tyr Ile Tyr Leu Phe Met Leu
  1             5                 10                  15
Ile Val Ala Gly Pro Val Asp Leu Asn Glu Asn Ser Glu Gln Lys Glu
            20                  25                  30
Asn Val Glu Lys Glu Gly Leu Cys Asn Ala Cys Thr Trp Arg Gln Asn
        35                  40                  45
Thr Lys Ser Ser Arg Ile Glu Ala Ile Lys Ile Gln Ile Leu Ser Lys
    50                  55                  60
Leu Arg Leu Glu Thr Ala Pro Asn Ile Ser Lys Asp Val Ile Arg Gln
65                  70                  75                  80
Leu Leu Pro Lys Ala Pro Pro Leu Arg Glu Leu Ile Asp Gln Tyr Asp
            85                  90                  95
Val Gln Arg Asp Asp Ser Ser Asp Gly Ser Leu Glu Asp Asp Asp Tyr
            100                 105                 110
His Ala Thr Thr Glu Thr Ile Ile Thr Met Pro Thr Glu Ser Asp Phe
            115                 120                 125
Leu Met Gln Val Asp Gly Lys Pro Lys Cys Cys Phe Phe Lys Phe Ser
    130                 135                 140
Ser Lys Ile Gln Tyr Asn Lys Val Val Lys Ala Gln Leu Trp Ile Tyr
145                 150                 155                 160
Leu Arg Pro Val Glu Thr Pro Thr Thr Val Phe Val Gln Ile Leu Arg
            165                 170                 175
Leu Ile Lys Pro Met Lys Asp Gly Thr Arg Tyr Thr Gly Ile Arg Ser
            180                 185                 190
Leu Lys Leu Asp Met Asn Pro Gly Thr Gly Ile Trp Gln Ser Ile Asp
            195                 200                 205
Val Lys Thr Val Leu Gln Asn Trp Leu Lys Gln Pro Glu Ser Asn Leu
```

```
            210                   215                   220
Gly Ile Glu Ile Lys Ala Leu Asp Glu Asn Gly His Asp Leu Ala Val
225                   230                   235                   240
Thr Phe Pro Gly Pro Gly Glu Asp Gly Leu Asn Pro Phe Leu Glu Val
                  245                   250                   255
Lys Val Thr Asp Thr Pro Lys Arg Ser Arg Arg Asp Phe Gly Leu Asp
                  260                   265                   270
Cys Asp Glu His Ser Thr Glu Ser Arg Cys Cys Arg Tyr Pro Leu Thr
                  275                   280                   285
Val Asp Phe Glu Ala Phe Gly Trp Asp Trp Ile Ile Ala Pro Lys Arg
                  290                   295                   300
Tyr Lys Ala Asn Tyr Cys Ser Gly Glu Cys Glu Phe Val Phe Leu Gln
305                   310                   315                   320
Lys Tyr Pro His Thr His Leu Val His Gln Ala Asn Pro Arg Gly Ser
                  325                   330                   335
Ala Gly Pro Cys Cys Thr Pro Thr Lys Met Ser Pro Ile Asn Met Leu
                  340                   345                   350
Tyr Phe Asn Gly Lys Glu Gln Ile Ile Tyr Gly Lys Ile Pro Ala Met
                  355                   360                   365
Val Val Asp Arg Cys Gly Cys Ser
370                   375
```

<210> 39
<211> 455
<212> PRT
<213> HOMO SAPIEN

<400> 39

```
Pro Met Ala Arg Pro Asn Lys Phe Leu Leu Trp Phe Cys Cys Phe Ala
1                 5                   10                  15
Trp Leu Cys Phe Pro Ile Ser Leu Gly Ser Gln Ala Ser Gly Gly Glu
                  20                  25                  30
Ala Gln Ile Ala Ala Ser Ala Glu Leu Glu Ser Gly Ala Met Pro Trp
                  35                  40                  45
Ser Leu Leu Gln His Ile Asp Glu Arg Asp Arg Ala Gly Leu Leu Pro
      50                  55                  60
Ala Leu Phe Lys Val Leu Ser Val Gly Arg Gly Gly Ser Pro Arg Leu
65                  70                  75                  80
Gln Pro Asp Ser Arg Ala Leu His Tyr Met Lys Lys Leu Tyr Lys Thr
                  85                  90                  95
Tyr Ala Thr Lys Glu Gly Ile Pro Lys Ser Asn Arg Ser His Leu Tyr
                  100                 105                 110
Asn Thr Val Arg Leu Phe Thr Pro Cys Thr Arg His Lys Gln Ala Pro
                  115                 120                 125
Gly Asp Gln Val Thr Gly Ile Leu Pro Ser Val Glu Leu Leu Phe Asn
      130                 135                 140
Leu Asp Arg Ile Thr Thr Val Glu His Leu Leu Lys Ser Val Leu Leu
145                 150                 155                 160
Tyr Asn Ile Asn Asn Ser Val Ser Phe Ser Ser Ala Val Lys Cys Val
                  165                 170                 175
Cys Asn Leu Met Ile Lys Glu Pro Lys Ser Ser Ser Arg Thr Leu Gly
                  180                 185                 190
Arg Ala Pro Tyr Ser Phe Thr Phe Asn Ser Gln Phe Glu Phe Gly Lys
                  195                 200                 205
Lys His Lys Trp Ile Gln Ile Asp Val Thr Ser Leu Leu Gln Pro Leu
      210                 215                 220
```

```
Val Ala Ser Asn Lys Arg Ser Ile His Met Ser Ile Asn Phe Thr Cys
225                 230                 235                 240
Met Lys Asp Gln Leu Glu His Pro Ser Ala Gln Asn Gly Leu Phe Asn
                245                 250                 255
Met Thr Leu Val Ser Pro Ser Leu Ile Leu Tyr Leu Asn Asp Thr Ser
                260                 265                 270
Ala Gln Ala Tyr His Ser Trp Tyr Ser Leu His Tyr Lys Arg Arg Pro
                275                 280                 285
Ser Gln Gly Pro Asp Gln Glu Arg Ser Leu Ser Ala Tyr Pro Val Gly
                290                 295                 300
Glu Glu Ala Ala Glu Asp Gly Arg Ser Ser His His Arg His Arg Arg
305                 310                 315                 320
Gly Gln Glu Thr Val Ser Ser Glu Leu Lys Lys Pro Leu Gly Pro Ala
                325                 330                 335
Ser Phe Asn Leu Ser Glu Tyr Phe Arg Gln Phe Leu Leu Pro Gln Asn
                340                 345                 350
Glu Cys Glu Leu His Asp Phe Arg Leu Ser Phe Ser Gln Leu Lys Trp
                355                 360                 365
Asp Asn Trp Ile Val Ala Pro His Arg Tyr Asn Pro Arg Tyr Cys Lys
                370                 375                 380
Gly Asp Cys Pro Arg Ala Val Gly His Arg Tyr Gly Ser Pro Val His
385                 390                 395                 400
Thr Met Val Gln Asn Ile Ile Tyr Glu Lys Leu Asp Ser Ser Val Pro
                405                 410                 415
Arg Pro Ser Cys Val Pro Ala Lys Tyr Ser Pro Leu Ser Val Leu Thr
                420                 425                 430
Ile Glu Pro Asp Gly Ser Ile Ala Tyr Lys Glu Tyr Glu Asp Met Ile
                435                 440                 445
Ala Thr Lys Cys Thr Cys Arg
                450                 455


<210> 40
<211> 238
<212> PRT
<213> HOMO SAPIEN

<400> 40
Pro Met Pro Gly Leu Ile Ser Ala Arg Gly Gln Pro Leu Leu Glu Val
 1                   5                   10                  15
Leu Pro Pro Gln Ala His Leu Gly Ala Leu Phe Leu Pro Glu Ala Pro
                20                  25                  30
Leu Gly Leu Ser Ala Gln Pro Ala Leu Trp Pro Thr Leu Ala Ala Leu
                35                  40                  45
Ala Leu Leu Ser Ser Val Ala Glu Ala Ser Leu Gly Ser Ala Pro Arg
                50                  55                  60
Ser Pro Ala Pro Arg Glu Gly Pro Pro Pro Val Leu Ala Ser Pro Ala
65                  70                  75                  80
Gly His Leu Pro Gly Gly Arg Thr Ala Arg Trp Cys Ser Gly Arg Ala
                85                  90                  95
Arg Arg Pro Pro Pro Gln Pro Ser Arg Pro Ala Pro Pro Pro Ala
                100                 105                 110
Pro Pro Ser Ala Leu Pro Arg Gly Gly Arg Ala Ala Arg Ala Gly Gly
                115                 120                 125
Pro Gly Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg
                130                 135                 140
Ser Gln Leu Val Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp
```

```
145                     150                     155                     160
Glu Leu Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg
                    165                     170                     175
Ser Pro His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu
                    180                     185                     190
Arg Pro Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro
                195                     200                     205
Thr Arg Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg
            210                     215                     220
Thr Val Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
225                     230                     235
```

<210> 41
<211> 157
<212> PRT
<213> HOMO SAPIEN

<400> 41
```
Pro Met Ala Val Gly Lys Phe Leu Leu Gly Ser Leu Leu Leu Leu Ser
 1                   5                   10                      15
Leu Gln Leu Gly Gln Gly Trp Gly Pro Asp Ala Arg Gly Val Pro Val
                20                  25                      30
Ala Asp Gly Glu Phe Ser Ser Glu Gln Val Ala Lys Ala Gly Gly Thr
            35                  40                      45
Trp Leu Gly Thr His Arg Pro Leu Ala Arg Leu Arg Arg Ala Leu Ser
        50                  55                      60
Gly Pro Cys Gln Leu Trp Ser Leu Thr Leu Ser Val Ala Glu Leu Gly
65                  70                      75                      80
Leu Gly Tyr Ala Ser Glu Glu Lys Val Ile Phe Arg Tyr Cys Ala Gly
                85                  90                      95
Ser Cys Pro Arg Gly Ala Arg Thr Gln His Gly Leu Ala Leu Ala Arg
            100                     105                     110
Leu Gln Gly Gln Gly Arg Ala His Gly Gly Pro Cys Cys Arg Pro Thr
        115                     120                     125
Arg Tyr Thr Asp Val Ala Phe Leu Asp Asp Arg His Arg Trp Gln Arg
    130                     135                     140
Leu Pro Gln Leu Ser Ala Ala Ala Cys Gly Cys Gly Gly
145                     150                     155
```